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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,734	11/17/2003	Floribertus Heukensfeldt Jansen	140042 (1306-46)	4658

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
HORWAT, JENNIFER A	
ART UNIT	**PAPER NUMBER**
3768	

DATE MAILED: 08/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/714,734	JANSEN ET AL.	
	Examiner	Art Unit	
	Jennifer Horwat	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/17/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/17/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-24 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-33 of copending Application No. 11/254266. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applicants disclose a method for localization of fluorescence in a medium including the steps of illuminating the medium, modulating via ultrasound, and detecting the optical signal.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-9, 14-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Sfez, et al (US 2004/0099815). Sfez discloses an apparatus and method for probing light absorbing agents in biological tissues including the steps for ultrasound modulated light tomography (paragraph 70). An illuminator is optically coupled to the scattering medium and the diffused light interacts with the ultrasound signal, which is detected by a detector (paragraph 73). A spatial distribution of the fluorescence is reconstructed (figure 11). The volume is scanned by the ultrasound transducer along the surface of the sample (paragraph 113). The modulation is done by a sinusoidal signal that is time dependant (paragraph 161). The light used may be a continuous wave laser light which propagates within the medium (paragraph 96) and may include a band-pass filter (paragraph 73). An optical fiber may be used to deliver light input and output (paragraph 113). The detector used may be a photodetector array (paragraph 24) or a photomultiplier tube (paragraph 113). As shown in one embodiment, the ultrasonically induced pressure gradient is shaped as a single ultrasonic focal spot (fig. 7b) or may

have an array of focal spots (claim 27) scanned by a phased array of transducers (paragraph 31). Naturally occurring agents such as hemoglobin may be targeted as well as other agents such as indocyanine green dye (paragraph 18) that is probed using near-infrared wavelengths.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over (US 6699192). Sfez, as discussed above, substantially discloses the invention as claimed, however fails to explicitly disclose the use of ultrasonically induced gradient of refractive index. Ogawa also discloses a photo-detection apparatus wherein light is modulated with an ultrasonic wave (abstract) and further discloses modulation using a gradient refractive index lens (GRIN). The light follows the optical transmission path at the collimating portion, or the GRIN, and is subjected to intensity modulation (col 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Sfez in light of the disclosure by Ogawa to include a GRIN for modulating the optical signal, as the use of a lens is a simple and well-known method known in the art to modulate a signal.

7. Claims 10, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sfez in view of Nelson, et al (6216540). Sfez, as discussed above, substantially discloses the invention as claimed, however fails to explicitly disclose details of the detecting step. Nelson discloses sinusoidal wave modulation wherein the temporal or phase properties may be utilized. Nelson further discloses that a variety of time-resolved optical imaging techniques are well known in the imaging art for use with highly scattering media including heterodyne, homodyne, and gating (cols 19 and 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Sfez to include well known detection techniques in order to reduce the noise and improve detection of the signal.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sfez in view of Schmid (US 3182292). Sfez, as discussed above, substantially discloses the invention as claimed, however fails to explicitly disclose the use of a double cross correlation technique. Schmid discloses a device for noise rejection used in sensing light from an optical path in which cross-correlating circuits are used to reduce noise. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the disclosure of Sfez in light of the disclosure of Schmid to include multiple cross-correlating circuits to the device disclosed by Sfez in order to reduce the noise in the measurements to obtain an optimal signal.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Balberg, et al teaches a method of note.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Horwat whose telephone number is (571) 272-2811. The examiner can normally be reached on M-Th 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on (571) 272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jah
8/3/06

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